SEQUENCE LISTING

<110> Owens, Gary K.
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Blank, Randall
University of Virginia Patent Foundation

<120> Compositions and Methods for Modulating Expression
Within Smooth Muscle Cells

<130> 021258-000500US

<140> US 09/807,757
<141> 2001-04-17

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<151> 1998-10-23

<150> WO PCT/US99/24972
<151> 1999-10-22

<160> 32

<170> PatentIn Ver. 2.1

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<223> smooth muscle alpha-actin (SM alpha-A) gene
regulatory region 5' promoter and intron
genomic sequence

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regulatory region intronic promoter fragment

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<213> Homo sapiens

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5' promoter region

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<213> Rattus sp.

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<223> smooth muscle alpha-actin (SM alpha-A) gene
5' promoter region

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<213> Mus sp.

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<213> Gallus sp.

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<223> smooth muscle alpha-actin (SM alpha-A) gene
5' promoter region

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<223> smooth muscle alpha-actin (SM alpha-A) gene
first intron sequence

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first intron sequence

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aaatgattgt agctccttag cttgcatgat ttcgtatcta aacgggacta aaaatgaatc 180
gtggtttact ggcaaaggag atggagagga aattaaagtt tgttcatgcg tggcatctgt 240
gaaatctgtt tacactaaac caactgctcg gatcccgcag cctactatag gggagaagtc 300
cagccatcta tggtaaatta tacatttgtt tctacttagg tgttggacac ttgtggattt 360
gtctatggtt cagacttagt gtgaggactt tccatctgac cgactacagc cgggttaact 420
ggaactggat gtcaggagtg aactggcgcg gttgcctgcg ctctggtttt ggctgagtgg 480
actgcgttgc ctctgggttt ccggggctct aacagtagac atgtatatct tgtgccctta 540
cgattcaaac ctatgtcatt ggtcatttgc agcaaagcat agctcctcta ctctctgcaa 600
agaaatgagg aagtgtctca ttcgggaagg atctgattgc gtttctctgc ctcaagtgtc 660
cctctggccc cttaggcaga atctctgtgg gagccacccc actcaggact tggtaacttc 720
tgcagggaaa cggagttttc tcgataagat tttcctcccc ttttgtgatt catgactaaa 780
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<210> 9
<211> 2719
<212> DNA
<213> Mus sp.

<220>
<223> smooth muscle alpha-actin (SM alpha-A) gene
first intron sequence

<400> 9
gtaagtagcc ccagcccagg gatatgactt cgagttttcc caggctcttt tatcatccaa 60
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agatttatac tgttaaaatg attgtagctt tttagcttgc atgattttac atccgaatag 180
ggctgattta ctggaaacaa cgcttgattt actggaaaag gaaatggata gaaaattaaa 240
gtttgttcat gtgtgtcatc tgcaaaacct gtttacacta aaccaactgc tctgatcccg 300
cagcgtactg taggggtgga gtctagctgt atgtggtaaa ttatacgttt gtttctatta 360
ggcaaaagtt ggaaactttt ggatgtatca tgatgtagca tgaggtattt agtgcagctg 420
aggtaactgg aagtgaatat caggaatgaa ctgaggtagt tgcctgctct ctgatgttgg 480
ctgagtggac gcattgcttc tgggtttccg gggctctaag agctggtgtc ctatgctgga 540
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tgcagcatag catagctttt ctactttctg caaagaaagg aggaagtgtc tcatccaggg 660
gagatctgat ttgcatttct ctgcctcacg tgtccctcag ccgcttaagt atctgtggaa 720
ccagccttgc caccccacat tgtaactcag ggctcggtag cttcatcagg gaatggagtt 780
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caaaggcttt acagcctagt gaaagcattt caagataaag ggtgttagtt gagaactgtg 2580
gagagcctcc agctaaaata acacaacagg accaagaacc ctgtctgtgg gtgggagtga 2640
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cctgagacgc tgctccagc 2719

<210> 10
<211> 2255
<212> DNA
<213> Gallus sp.

<220>
<223> smooth muscle alpha-actin (SM alpha-A) gene
first intron sequence

<400> 10
gtaagtggca ctgaaccaat agtgggattt atagttttct ggatgacttt aattaagtaa 60
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ttactagaac tgaattggta aaatactttc aatgtctaca ctgagttgta tttgttttaa 180
agcacttttg aatgggaaat acgtctgatg attttgccga ttccaccaac actccaacgg 240
taatataaag acacagactg tttaatggca cagctggaat ttaagagaac ctgtgtgccc 300
ctgtggagtt agctttggac agaacagagt tcctgaatgg gtgaatttgc acactgtgta 360
gtggtttctc agcagctttg cttcagtgct ctcaaaatca gcttaaattg acgtaagtgt 420
tttggagtgt gactgcaaga agagctggaa gatgcaaaat agcagtatct aatcagatgc 480
aatgaggatg catgtgtatt cattgctgtc tcgatagata tgaaagctgt ggtctgcaaa 540
acgcccaata ttttattaaa gatcacatta tacacagagt tccttgtgag gctggagttg 600
ttctcctgat agcatgctgt agaggctggg gaagtgattg gttgtctttc agtgtaaagc 660
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gcagtgtgag tgacttttgc tgctggagga tgttactact gcatgccatg gcagtccttg 780
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gaagtccagg ctcccagcta gtcgagtgat tccctaacac actataaatt gtgggcaaat 1620
agttctcctc gagtgctggt attcggggct tgtttccgta attgacttta atacaaaccc 1680
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gaatagttcc atggagtact ttgaattatg tctggtgcat acagccttcc tgcctatcag 2160

ttccttttat accgcattct ctgtcttaca gggtggttct ggtacctcac tttgttgttt 2220
ttttttcaat tattcttttc ttgctgtttc catag 2255

<210> 11
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:site-directed
A mutant sequence, mutated CARG sequence CARG A,
gel shift analysis oligonucleotide A mut

<400> 11
aattgtttaa 10

<210> 12
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:site-directed
B mutant sequence, mutated CARG sequence CARG B,
gel shift analysis oligonucleotide B mut

<400> 12
ccctatatca 10

<210> 13
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:site-directed
Int mutant sequence, mutated CARG sequence
intronicCARG, gel shift analysis oligonucleotide
Int mut

<400> 13
aataattaaa 10

<210> 14
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:CArG A
oligonucleotide probe used in electromobility
shift assay (EMSA), human and rat conserved cis
regulatory element CArG A in smooth muscle
alpha-actin (SM alpha-A) 5' promoter region

<400> 14
ttgctccttg tttgggaagc 20

<210> 15
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:CArG B oligonucleotide probe used in electromobility shift assay (EMSA), human, rat and mouse conserved cis regulatory element CArG B in smooth muscle alpha-actin (SM alpha-A) 5' promoter region

<400> 15
gaggtcccta tatggttgtg 20

<210> 16
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Intronic CArG oligonucleotide probe used in electromobility shift assay (EMSA), human, rat and mouse conserved cis regulatory element Int CArG in smooth muscle alpha-actin (SM alpha-A) first intron promoter region

<400> 16
ttttacctaa ttaggaaatg 20

<210> 17
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PCR 5' primer complementary to E. coli Lac Z gene

<400> 17
gcatcgagct gggtaataag cgttggcaat 30

<210> 18
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PCR 3' primer complementary to E. coli Lac Z gene

<400> 18
gacaccagac caactggtaa tggtagcgac 30

<210> 19
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Conserved region of Human AP1-like sequence

<220>
<223> Description of Artificial Sequence:human conserved cis regulatory element AP1-like in smooth muscle alpha-actin (SM alpha-A) first intron promoter region

<400> 19
tcatggacta aatatggttt gt 22

<210> 20
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:human conserved cis regulatory element GATA in smooth muscle alpha-actin (SM alpha-A) first intron promoter region

<400> 20
ttcaggttag agaggagctg 20

<210> 21
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:chicken conserved cis regulatory element CArG B in smooth muscle alpha-actin (SM alpha-A) 5' promoter region

<400> 21
aaggtcccta tatggttttg 20

<210> 22
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:mutated sequence for CArG B

<400> 22
ccctatatca 10

<210> 23
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:mouse conserved cis regulatory element CArG A in smooth muscle alpha-actin (SM alpha-A) 5' promoter region

<400> 23
ttgctccttg tttgggaggc 20

<210> 24
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:chicken conserved cis regulatory element CArG A in smooth muscle alpha-actin (SM alpha-A) 5' promoter region

<400> 24
ctgctccttg tttgggaggc 20

<210> 25
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:mutated sequence for CArG A

<400> 25
aattgtttaa 10

<210> 26
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:rat conserved cis regulatory element AP1-like in smooth muscle alpha-actin (SM alpha-A) first intron promoter region

<400> 26
tcatgactaa atatggtttg c 21

<210> 27
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:chicken conserved
cis regulatory element AP1-like in smooth muscle
alpha-actin (SM alpha-A) first intron promoter region

<400> 27
tctattacta aatatggttt tc 22

<210> 28
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<220>
<223> Description of Artificial Sequence:mutated sequence
for AP1-like

<400> 28
gaggaagtat 10

<210> 29
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:chicken conserved
cis regulatory element intronic CArG in smooth muscle
alpha-actin (SM alpha-A) first intron promoter region

<400> 29
tatttcctaa ttaggaaatg 20

<210> 30
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:mutated sequence
for intronic CArG

<400> 30
aataattaaa 10

<210> 31
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:rat and mouse
conserved cis regulatory element GATA in smooth muscle
alpha-actin (SM alpha-A) first intron promoter region

<400> 31
ttcaggttag ataagagttg 20

<210> 32
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:chicken conserved cis regulatory element GATA in smooth muscle alpha-actin (SM alpha-A) first intron promoter region

<400> 32
ttcaggttag ataacaattg 20